

MOSQUITO BIOLOGY AND NAMES

Mosquitoes are insects with long slender bodies, narrow wings with a fringe of scales on the rear margin and along the veins, and long thin legs. Both males and females consume plant nectar. Females also are adapted for feeding on blood, which usually is needed for egg development. There are four life stages: egg, larva, pupa, and winged adult. After the tiny eggs hatch, mosquito larvae (or wrigglers) feed on microorganisms and very small plant and animal particles. Mosquito pupae (plural) do not feed.

Each species has distinctive morphological, physiological, and behavioral characteristics, including: typical egg-laying site, daily behavior pattern, normal flight range, and preferred host animal or plant. Flight distances vary from a few hundred feet to more than 80 miles with favorable winds. There are temperature tolerance limits at each stage. Both temperature and humidity are critical for adult mosquito survival. Overwintering by different species can be as eggs, larvae, or adults.

Higher Classification

Kingdom Animalia (all animals)

Phylum Arthropoda (all animals with paired, jointed appendages and exoskeletons)

Class Insecta (all insects; adults with three main body divisions and six legs)

Order Diptera (all two-winged flies)

Family Culicidae (mosquitoes)

There are 37 mosquito genera worldwide and 12 in Florida. The first word of the scientific name is the genus (capitalized), and the last word is the species (not capitalized). Both are italicized because they are Latin words. Sometimes a subgenus is given in parentheses or a subspecies at the end.

All Florida mosquitoes belong to one of three subfamilies of Culicidae: Toxorhynchitinae (e.g., genus *Toxorhynchites*), Anophelinae (e.g., *Anopheles*), or Culicinae (the other 10 genera). Of about 3500 species in the world, 80 occur in Florida, and 68 in St. Lucie County.

The major salt marsh mosquito, *Aedes (Ochlerotatus) taeniorynchus*, is known for its fierce biting plus synchronized egg-laying and hatching patterns that produce large swarms.

Mansonia and *Coquillettidia* larvae do not have to breathe at the water surface like most others. They have a sharp pointed siphon to pierce the roots or stems of aquatic plants for oxygen.

The larvae of *Toxorhynchites* are found in tree holes or artificial containers. They are large and predacious, feeding on mosquito larvae and other small animals.

Florida mosquitoes hatch mainly in the summer and fall. Exceptions include *Anopheles punctipennis*, *Culex restuans*, and *Culex salinarius*, which hatch all year but reach peak numbers in late spring.

Mosquitoes occur throughout the world, except in permanently frozen regions. Egg-laying occurs in almost every known aquatic habitat except very swift currents or open water. Eggs of different species are laid on water, damp soil, or plants.

Main Egg-laying Methods (with examples)

Individual on water (*Anopheles*, *Psorophora*, *Toxorhynchites*)

Individual on soil (*Aedes*, *Psorophora*)

Individual on cavity walls (*Aedes*, *Anopheles*, *Culex*, *Deinocerites*,
Orthopodomyia, *Toxorhynchites*, *Wyeomyia*)

In rafts on water (*Culex*, *Culiseta*, *Coquillettidia*, *Uranotaenia*)

In rafts on plants, usually underneath (*Mansonia* on waterlettuce)

For more information, see references such as the Florida Mosquito Control Handbook (2004, managing editor C. Roxanne Rutledge), and websites such as <http://fme1.ifas.ufl.edu> (Florida Medical Entomology Laboratory), <http://mosquito.ifas.ufl.edu> (the Mosquito Information Site), http://wrbu.si.edu/command_aors_MQ.html (Walter Reed Biosystematics Unit).

COMMON ST. LUCIE COUNTY MOSQUITOES LISTED BY HABITAT

Salt Marshes (includes mangroves)

<i>Aedes (Ochlerotatus) sollicitans</i>	Eastern saltmarsh mosquito
<i>Aedes (Ochlerotatus) taeniorhynchus</i>	Black saltmarsh mosquito
<i>Anopheles atropos</i>	
<i>Anopheles barberi</i>	
<i>Anopheles bradleyi</i>	
<i>Culex nigripalpus</i>	St. Louis Encephalitis mosquito
<i>Deinocerites cancer</i>	Crabhole mosquito

Saltwater or Brackishwater Ditches

<i>Aedes (Ochlerotatus) sollicitans</i>
<i>Aedes (Ochlerotatus) taeniorhynchus</i>
<i>Anopheles bradleyi</i>
<i>Culex salinarius</i>

Freshwater Marshes

<i>Aedes (Ochlerotatus) atlanticus</i>	
<i>Anopheles crucians</i>	
<i>Anopheles walkeri</i>	
<i>Coquillettidia perturbans</i>	
<i>Culex erraticus</i>	
<i>Culex nigripalpus</i>	
<i>Culex salinarius</i>	
<i>Psorophora columbiae</i>	Florida glades mosquito
<i>Psorophora ferox</i>	White-footed woods mosquito

Freshwater Ponds and Lakes

<i>Anopheles crucians</i>	
<i>Anopheles quadrimaculatus</i>	Common malaria mosquito
<i>Anopheles walkeri</i>	
<i>Coquillettidia perturbans</i>	
<i>Culex nigripalpus</i>	
<i>Culex tarsalis</i>	
<i>Mansonia dyari</i>	
<i>Mansonia titillans</i>	
<i>Psorophora ciliata</i>	Shaggy-legged gallinipper
<i>Psorophora columbiae</i>	
<i>Psorophora ferox</i>	
<i>Psorophora howardii</i>	Howard's gallinipper

Freshwater Canals and Ditches

Coquillettidia perturbans

Culex pilosus

Mansonia dyari

Mansonia titillans

Psorophora ciliata

Psorophora columbiae

Psorophora ferox

Psorophora howardii

Containers

Aedes aegypti

Aedes albopictus

Aedes (Ochlerotatus) bahamensis

Aedes (Ochlerotatus) triseriatus

Anopheles barberi

Anopheles crucians

Culex erraticus

Culex nigripalpus

Culex quinquefasciatus

Culex restuans

Culex salinarius

Orthopodomyia signifera

Toxorhynchites rutilus rutilus

Toxorhynchites rutilus septentrionalis

Yellow fever mosquito

Asian tiger mosquito

Eastern treehole mosquito

Southern house mosquito

White-dotted mosquito

Unbanded saltmarsh mosquito

LESS COMMON ST. LUCIE COUNTY MOSQUITOES

<i>Aedes cinereus</i>	Small woodland mosquito
<i>Aedes vexans</i>	Inland floodwater mosquito
<i>Aedes (Ochlerotatus) canadensis</i>	Woodland pool mosquito
<i>Aedes (Ochlerotatus) dupreei</i>	
<i>Aedes (Ochlerotatus) fulvus pallens</i>	
<i>Aedes (Ochlerotatus) infirmatus</i>	
<i>Aedes (Ochlerotatus) mathesoni</i>	
<i>Aedes (Ochlerotatus) mitchellae</i>	
<i>Aedes (Ochlerotatus) sticticus</i>	Floodwater mosquito
<i>Aedes (Ochlerotatus) thelcter</i>	
<i>Aedes (Ochlerotatus) thibaulti</i>	
<i>Aedes (Ochlerotatus) tormentor</i>	Woodland floodwater mosquito
<i>Aedes (Ochlerotatus) tortilis</i>	
<i>Anopheles albimanus</i>	
<i>Anopheles georgianus</i>	Fresh floodwater mosquito
<i>Anopheles perplexens</i>	
<i>Anopheles punctipennis</i>	
<i>Culex atratus</i>	
<i>Culex bahamensis</i>	
<i>Culex iolambdis</i>	
<i>Culex mulrennani</i>	
<i>Culex opisthopus</i>	
<i>Culex peccator</i>	
<i>Culex territans</i>	
<i>Culiseta inornata</i>	
<i>Culiseta melanura</i>	Black-tailed mosquito
<i>Orthopodomyia alba</i>	
<i>Psorophora cyanescens</i>	
<i>Psorophora discolor</i>	
<i>Psorophora horrida</i>	
<i>Psorophora johnstonii</i>	
<i>Psorophora pygmaea</i>	
<i>Uranotaenia lowii</i>	
<i>Uranotaenia sapphirina</i>	
<i>Wyeomyia mitchellii</i>	
<i>Wyeomyia smithii</i>	
<i>Wyeomyia vanduzeei</i>	

MOSQUITO-TRANSMITTED DISEASES THAT HAVE OCCURRED IN FLORIDA, WITH EXAMPLES OF SPECIES THAT CAN CARRY EACH DISEASE (the most likely mosquitoes indicated by superscript ^m)

Avian Pox (virus)

Culex tarsalis

Eastern Equine Encephalitis (virus)

Aedes albopictus

Aedes (Ochlerotatus) canadensis

Aedes (Ochlerotatus) infirmatus

Aedes (Ochlerotatus) sollicitans^m

Aedes (Ochlerotatus) taeniorhynchus^m

Aedes (Ochlerotatus) triseriatus^m

Anopheles crucians^m

Coquillettidia perturbans^m

Culex nigripalpus^m

Culiseta melanura^m

Mansonia species

Highlands J Encephalitis (virus)

Aedes cinereus

Aedes vexans

Aedes (Ochlerotatus) canadensis

Culiseta melanura^m

St. Louis Encephalitis (virus)

Aedes (Ochlerotatus) sollicitans^m

Aedes (Ochlerotatus) taeniorhynchus^m

Culex nigripalpus^m

Culex quinquefasciatus^m

Culex restuans

Culex tarsalis

Mansonia dyari^m

Venezuelan Equine Encephalitis (virus)

Aedes (Ochlerotatus) taeniorhynchus

Culex nigripalpus^m

Mansonia titillans^m

West Nile Encephalitis (virus)

Aedes aegypti

Aedes albopictus

Aedes cinereus

Aedes (Ochlerotatus) atlanticus

Aedes (Ochlerotatus) canadensis

Aedes (Ochlerotatus) dupreei

Aedes (Ochlerotatus) triseriatus

Anopheles atropos

Anopheles barberi

Anopheles bradleyi

Anopheles crucians

Anopheles quadrimaculatus

Anopheles walkeri

Coquillettidia perturbans

Culex erraticus

Culex nigripalpus^m

Culex quinquefasciatus

Culex restuans

Culex salinarius

Culex tarsalis

Culiseta inornata

Culiseta melanura

Deinocerites cancer

Mansonia titillans

Orthopodomyia signifera

Psorophora ciliata

Psorophora columbiae

Psorophora ferox

Psorophora howardii

Dengue Fever (virus)

Aedes aegypti^m

Aedes albopictus^m

Yellow Fever (virus)

Aedes aegypti^m

Aedes albopictus^m

Aedes (Ochlerotatus) triseriatus^m

Culex nigripalpus

Malaria (protozoans)

Anopheles albimanus

Anopheles crucians

Anopheles quadrimaculatus^m

Filariasis or Elephantiasis (nematode worms)

Anopheles species

Culex quinquefasciatus

Mansonia species

Dog Heartworm (nematode worms)

Aedes aegypti^m

Aedes albopictus

Aedes vexans

Aedes (Ochlerotatus) canadensis

Aedes (Ochlerotatus) sollicitans^m

Aedes (Ochlerotatus) sticticus

Aedes (Ochlerotatus) taeniorhynchus^m

Aedes (Ochlerotatus) triseriatus^m

Anopheles bradleyi

Anopheles punctipennis^m

Anopheles quadrimaculatus^m

Culex nigripalpus^m

Culex quinquefasciatus^m

Culex salinarius^m

Mansonia titillans^m

Psorophora ferox